e-Exponential regression Calculator

Analyzes the data table by e-exponential regression and draws the chart.

e-Exponential regression: $y=Ae^{Bx}$

（input by clicking each cell in the table below）

No.	x	y
1	302.20398553634334	0.43460552002626957
2	401.9088595421428	0.36869450645195767
3	505.31795273644065	0.3232390409347363
4	598.0471976105778	0.2944744498230481
5	701.7038286703822	0.2697443649870472
6	809.2217409292141	0.25118864315095807
7	905.4157189380937	0.2377882968026018
8	999.999999999999	0.22758459260747893
9	1987.519712084896	0.1665054953069651
10	3009.0126602227697	0.1412537544622755
11	4001.763393264597	0.12451970847350334
12	4966.609758663147	0.11343887340720292
13	5954.691781536963	0.1033441063880557
14	6986.789735577608	0.09729605646212959
15	7953.583627213136	0.0911011395688753
16	8937.571151054222	0.0862410996895277
17	9956.892709017235	0.08208914159638261

data

(Inc/Dec of the row)

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function	value
mean of x	3,469.309048
mean of y	0.1738025013
correlation coefficient r	-0.9299736976
A	0.297558777
B	-1.54985377E-4
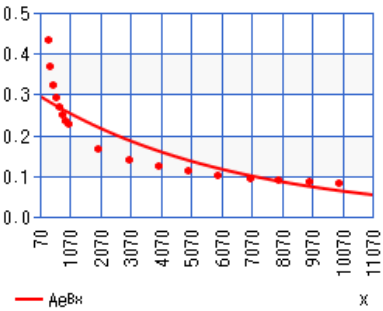
Guidelines for interpreting correlation coefficient r :
0.7＜|r|≦1　　strong correlation
0.4＜|r|＜0.7　moderate correlation
0.2＜|r|＜0.4　weak correlation
0≦|r|＜0.2　　no correlation

e-Exponential regression

(1) mean: $\bar{x} = \dfrac{\sum x_i}{n}, \quad \overline{lny} = \dfrac{\sum lny_i}{n}$

(2) trend line: $y = Ae^{Bx}, \quad B = \dfrac{Sxy}{Sxx}, \quad A = e^{\overline{lny} - B\bar{x}}$

(3) correlation coefficient: $r = \dfrac{Sxy}{\sqrt{S_{xx}}\sqrt{S_{yy}}}$

$$S_{xx} = \frac{\sum(x_i - \bar{x})^2}{n} = \frac{\sum x_i^2}{n} - \bar{x}^2$$

$$S_{yy} = \frac{\sum(lny_i - \overline{lny})^2}{n} = \frac{\sum lny_i^2}{n} - \overline{lny}^2$$

$$S_{xy} = \frac{\sum(x_i - \bar{x})(lny_i - \overline{lny})}{n} = \frac{\sum x_i lny_i}{n} - \bar{x}\,\overline{lny}$$